

RAIDHA COLLECTIONS LTD.

Zamirdia, Valuka, Mymensingh, Bangladesh

Environmental Inspection Report



PREPARED BY

Enviro**tech International Ltd.**

A. H. Tower (4th Floor), Plot No. # 56, Road # 02, Sector # 03, Azampur, Uttara, Dhaka-1230, Bangladesh
Phone: +88 02 45952923, Email: info@envirotechbd.com, Web: www.envirotechbd.com

January, 2018

Inspection Report

Report No.	: EIL-IR-1800431
Identification of Issuing Body	: Raidha Collections Ltd.
Address of Issuing Body	: Zamirdia, Valuka, Mymensingh, Bangladesh
Date of Inspection	: January 18, 2018
Inspection Time	: 9:00 AM-6:00 PM
Date of Issue	: January 23, 2017
Identification of Item(s) Inspected	: Sound/ Noise Level, Light Level, Temperature & Humidity Level, Stack Air Emission, Ambient Air Quality, Environmental Aspect Analysis.

Inspection summary:

Sl. No.	Inspection Item	Requirement	Equipment	Methods	Comment
1	Sound/Noise Level	ECR 1997 Recommendation Value is 75 Decibel /OSHA Standard is 90 Decibel for 8 hours Exposures	Sound Level Meter (SL-4001)	In house (EIL-IMP-01)	See the Result
2	Light Level	BNBC 2006 Guidelines chapter 1, part 8	Light Meter (LX-101A)	In house (EIL-IMP-02)	See the Result
3	Temperature Level	---	Humidity/Temperature meter	In house (EIL-IMP-03)	See the Result
4	Humidity Level	---	Humidity/Temperature meter	(In house (EIL-IMP-03)	See the Result
5	Stack Air Emission	ECR 1997 Standards and World Bank 2006 –IFC Standard	Flue Gas Analyzer & Sampler	In house (EIL-IMP-04)	See the Result
6	Indoor Air Quality	ECR- 1997 Standard and IFC/World Bank Standard	Respirable Dust Sampler/ Air Monitor	In house (EIL-IMP-06) & (EIL-IMP-07)	See the Result
7	Ambient Air Quality	ECR- 1997 Standard and IFC/World Bank Standard	Respirable Dust Sampler/ Air Monitor	In house (EIL-IMP-06) & (EIL-IMP-07)	See the Result

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Content:

Sl. No.	Inspection Item	Pages
1	Sound/ Noise Level	4-7
2	Temperature & Humidity Level	8-11
3	Light Level	12-16
4	Stack Air Emission Level	17-26
5	Air Quality	27-30
6	Green House Gas	31
7	Ozone Depleting Substances	32



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Collected Data of Sound/ Noise Level:

Sl. No	Name of Sections	Location	Obtained value
1	Leftover Garments	9 th Floor Building-1	61.5
2	Wastage/Leftover Goods	8 th Floor Building-1	54.3
3	Jacquard Section	7 th Floor Building-1	83.2
4	Jacquard Section	6 th Floor Building-1	81.8
5	Sample Section		70.2
6	Accessories Store		63.4
7	Chairman Room		59.8
8	DMD Room		61.2
9	Conference Room		62.5
10	GM Office		62.7
11	Accounts Section		63.5
12	Back Winding Section		84.9
13	Auto Placket Section		88.2
14	Delivery Counter		5 th Floor Building-1
15	Inspection	62.2	
16	Yarn Store	54.3	
17	Auto Knitting Section	84.2	
18	Dining Room	59.6	
19	Linking Section	73.4	
20	Sewing Section	4 th Floor Building-1	73.5
21	Iron Section		73.1
22	Light Check Section		71.4
23	Trimming & Mending Section		73.0
24	PQC Section		72.3
25	Packing Section		70.7
26	Linking Section		71.1
27	Sewing Section		72.9
28	Iron Section		71.9
29	Light Check Section		71.9
30	Trimming & Mending Section		71.9
31	PQC Section	3 rd Floor Building-1	69.8
32	Packing Section		71.3

ECR 1997 Recommendation Value is 75 Decibel

OSHA Standard is 90 Decibel for 8 hours Exposures



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Sl. No	Name of Sections	Location	Obtained value
33	Linking Section	2 nd Floor Building-1	69.3
34	Sewing Section		69.0
35	Iron Section		70.7
36	Light Check Section		70.8
37	Trimming & Mending Section		72.9
38	PQC Section		66.6
39	Packing Section		69.9
40	Finished Good Area	1 st Floor Building-1	62.7
41	General Store		64.3
42	Winding Section		85.6
43	Yarn Distribution		61.3
44	Inspection		60.0
45	Training Room		62.0
46	Panel Inspection		69.7
47	Auto Jacquard Section	Ground Floor Building-1	86.3
48	Boiler Room		93.7
49	Substation-1 Room	Building-2	67.6
50	Generator Room		98.3
51	Child Care Room	Building-3	65.0
52	Medical Room		63.9
53	Substation-2 Room	Building-4	71.8
54	Washing Section	Shed-1	83.0
55	Jacquard Section	Shed-2	83.3
56	Wastage Shed	Shed-3	55.0
57	Chemical Store	Shed-4	55.3
58	Wastage Metal Area	Shed-5	53.8
59	ETP	ETP Area	77.8


ECR 1997 Recommendation Value is 75 Decibel
OSHA Standard is 90 Decibel for 8 hours Exposures

Source: Field Survey January 18, 2018

Note: Sound is BAB Accredited Scopes


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Graphical Presentation of Sound/ Noise Level:

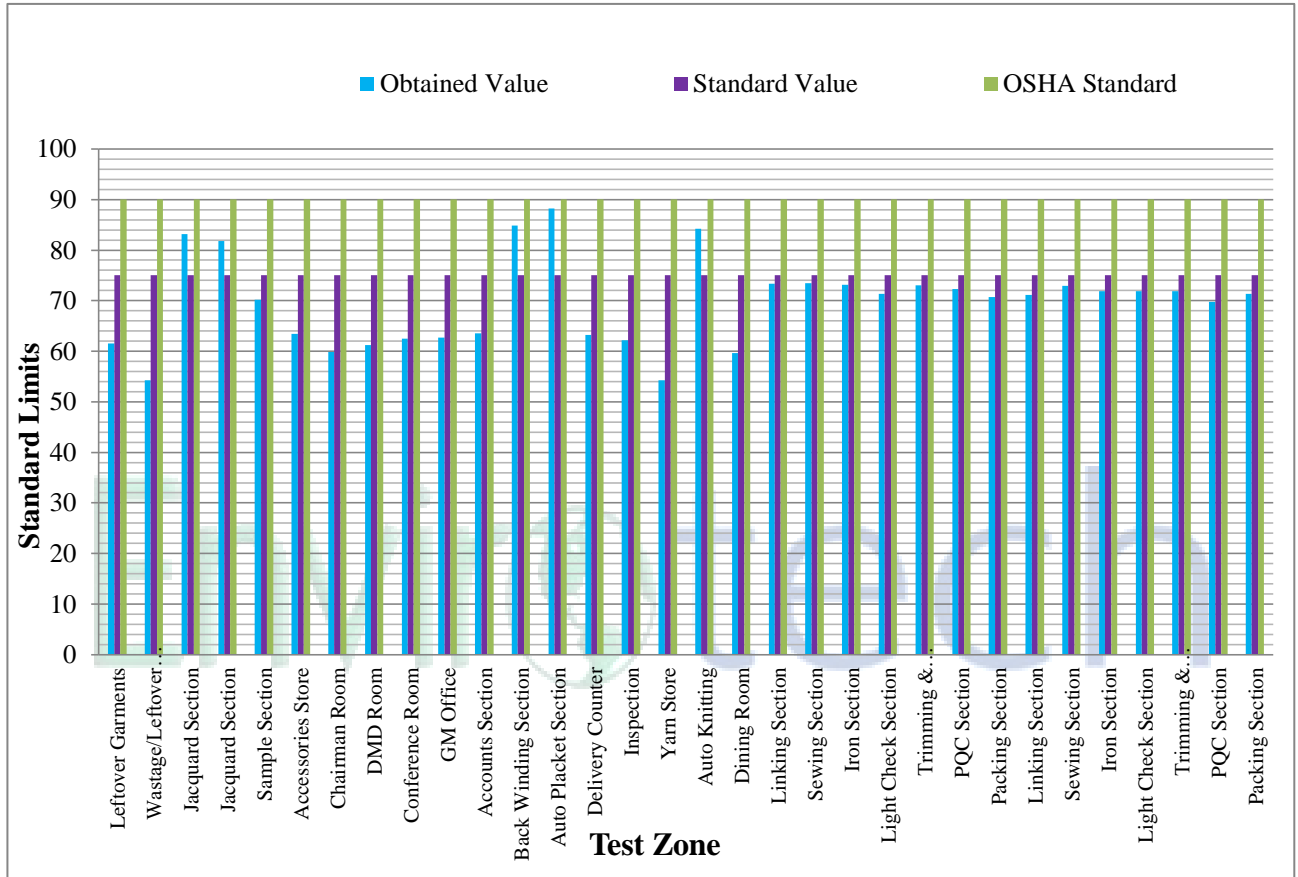


Figure: Graphical Presentation of Sound/ Noise level measurement test result

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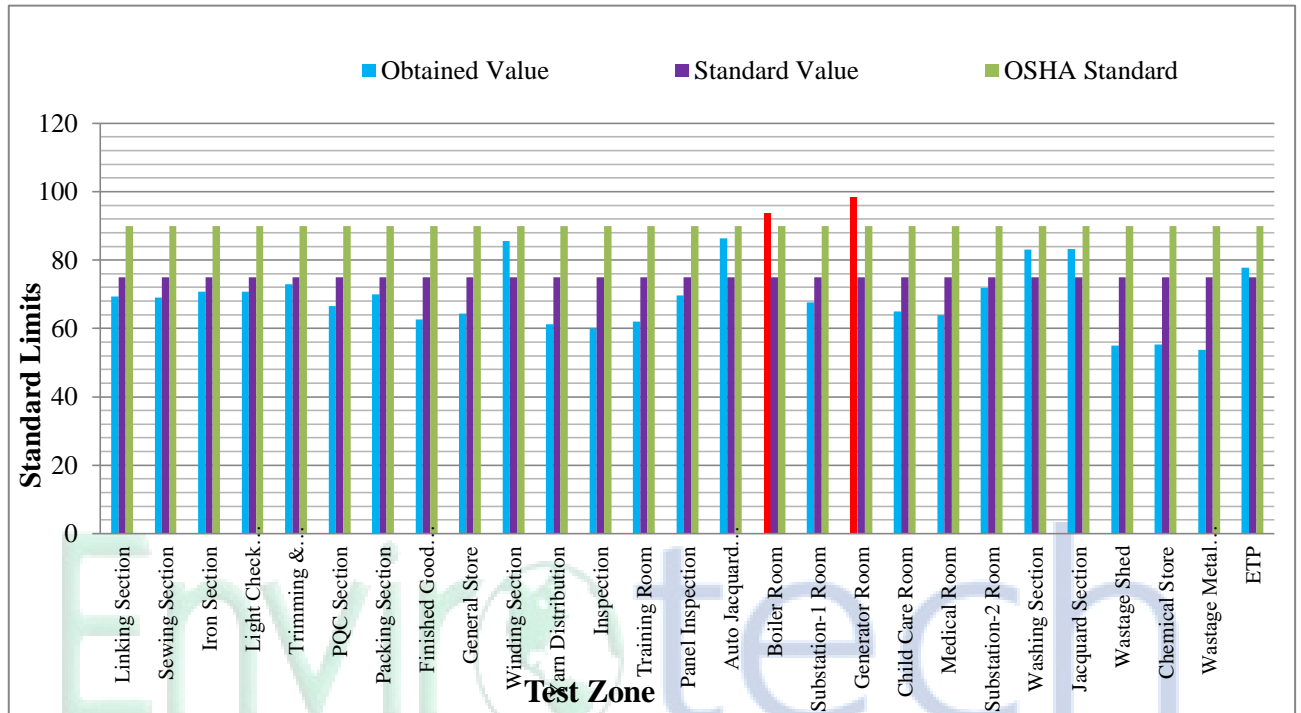


Figure: Graphical Presentation of Sound/ Noise level measurement test result

Comments: According to Department of Environment (ECR 1997) standard for ambient noise level in the industrial zone is 75 and 70 decibels at day and night time respectively and according to Occupational Safety and Health Administration standard (OSHA) is 90dB. The assessment results of some areas were found satisfactory and the workplace noise condition is quite good comparison to ambient noise quality standard. Since Generator and Boiler (According to OSHA and ECR-97) and Jacquard Section, Auto Placket, Back Winding Section, Washing Section, Winding Section and ETP (According to ECR-97) measured noise level exceeds the ambient noise quality standard, it is recommended that earplugs should be provided to related workers to avoid occupational health hazard.



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Collected Data of Temperature & Humidity Level:

Serial No.	Name of Sections	Location	Obtained Result	
			Temperature (°C)	Relative Humidity (%)
1	Leftover Garments	9 th Floor Building-1	24.3	60.3
2	Wastage/Leftover Goods	8 th Floor Building-1	25.2	61.3
3	Jacquard Section	7 th Floor Building-1		AC
4	Jacquard Section			AC
5	Sample Section		25.3	58.5
6	Accessories Store		24.2	59.4
7	Chairman Room	6 th Floor Building-1		AC
8	DMD Room			AC
9	Conference Room			AC
10	GM Office			AC
11	Accounts Section			AC
12	Back Winding Section	5 th Floor Building-1	24.2	64.3
13	Auto Placket		23.5	60.8
14	Delivery Counter		24.4	62.3
15	Inspection		24.8	63.4
16	Yarn Store		24.7	64.4
17	Auto Knitting Section			AC
18	Dining Room		25.5	62.9
19	Linking Section	4 th Floor Building-1	26.3	58.3
20	Sewing Section		25.6	54.4
21	Iron Section		25.6	56.4
22	Light Check Section		24.4	58.3
23	Trimming & Mending Section		26.3	55.4
24	PQC Section		25.3	58.4
25	Packing Section		24.6	59.4
26	Linking Section		24.5	56.9
27	Sewing Section	3 rd Floor Building-1	25.7	56.4
28	Iron Section		26.0	58.5
29	Light Check Section		25.9	56.9



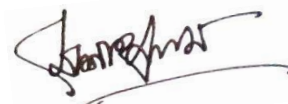
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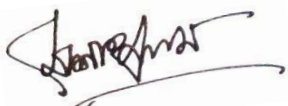
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Serial No.	Name of Sections	Location	Obtained Result	
			Temperature (°C)	Relative Humidity (%)
30	Trimming & Mending Section	2 nd Floor Building-1	26.0	56.4
31	PQC Section		25.4	57.7
32	Packing Section		25.3	58.5
33	Linking Section		25.7	54.5
34	Sewing Section		24.3	56.5
35	Iron Section		25.6	54.4
36	Light Check Section		26.2	58.4
37	Trimming & Mending Section		24.4	59.4
38	PQC Section		24.4	60.5
39	Packing Section		26.2	60.3
40	Finished Good Area	1 st Floor Building-1	24.3	61.5
41	General Store		24.7	62.5
42	Winding Section		26.4	64.5
43	Yarn Distribution		24.8	57.9
44	Inspection		25.1	62.0
45	Training Room		25.2	59.4
46	Panel Inspection		26.3	58.7
47	Auto Jacquard Section		Ground Floor Building-1	AC
48	Boiler Room	27.6		69.7
49	Substation-1 Room	Building-2	AC	
50	Generator Room		28.6	64.3
51	Child Care Room		24.3	63.3
52	Medical Room	Building-3	25.3	62.3
53	Substation-2 Room	Building-4	AC	
54	Washing Section	Shed-1	24.3	63.5
55	Jacquard Section	Shed-2	AC	
56	Wastage Shed	Shed-3	25.3	60.3
57	Chemical Store	Shed-4	26.1	58.5
58	Wastage Metal Area	Shed-5	25.2	59.5
59	ETP	ETP Area	24.3	54.3

Source: Field Survey January 18, 2018


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Note: Temperature and Humidity are BAB Accredited Scopes

Graphical Presentation of Temperature & Humidity Level:

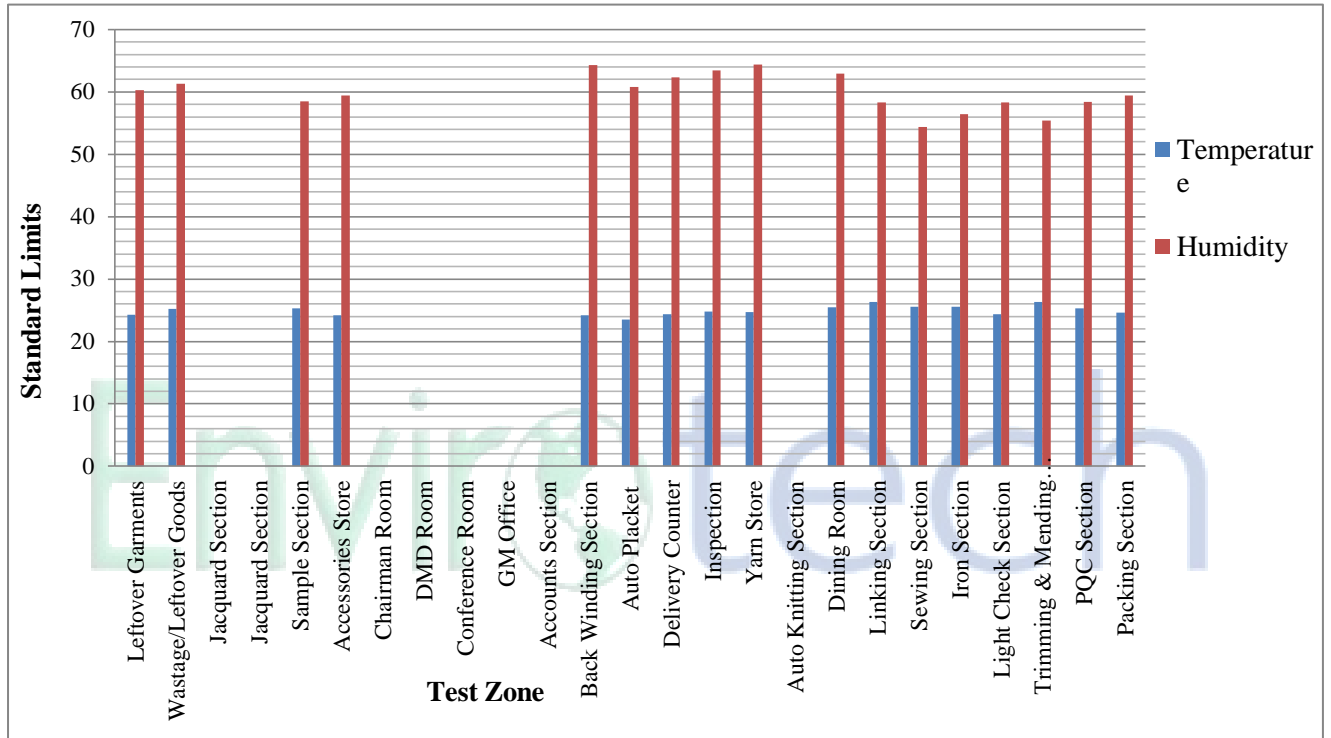


Figure: Graphical Presentation shows the Temperature & Humidity Level



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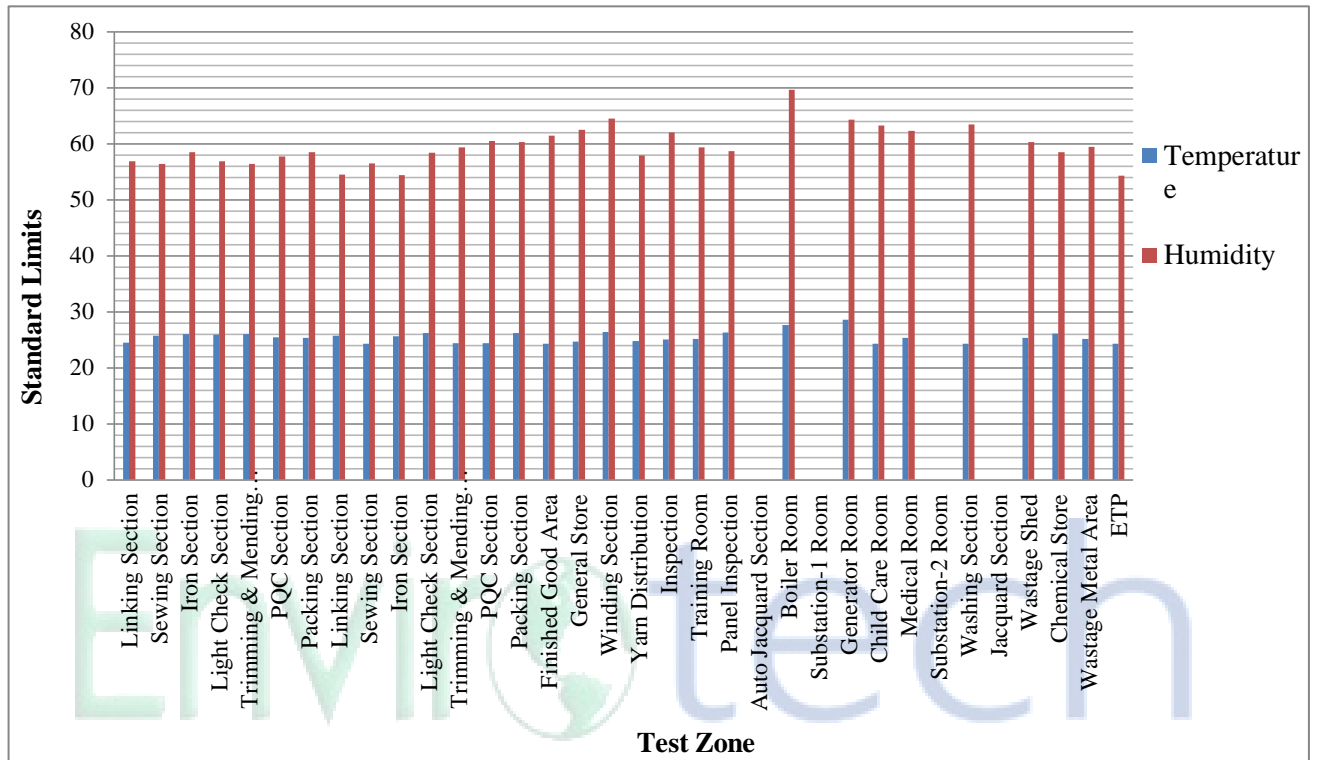


Figure: Graphical Presentation shows the Temperature & Humidity Level

Comment: The result of the workplace Temperature Level ranges between 23.5°C to 27.6°C and Humidity level ranges between 54.3% RH to 69.7% RH. The highest temperature level measured is 27.6°C in Boiler Room and the lowest temperature level measured is 23.5°C in Auto Placket. The highest humidity level measured is 69.7% RH in Boiler Room and the lowest humidity level measured is 54.3% RH in ETP



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Collected Data of Light Level:

Serial No.	Name of Sections	Location	Effect of weather Condition	Obtained Result in Lux0	BNBC 2006 Guideline standards (lux)
1	Leftover Garments	9 th Floor Building-1	Sunny	153.0	100-200
2	Wastage/Leftover Goods	8 th Floor Building-1	Sunny	-	N/A
3	Jacquard Section	7 th Floor Building-1	Sunny	504.8	300-700
4	Jacquard Section	6 th Floor Building-1	Sunny	626.0	300-700
5	Sample Section		Sunny	683.7	300-700
6	Accessories Store		Sunny	153.0	100-200
7	Chairman Room		Sunny	156.8	100-200
8	DMD Room		Sunny	163.2	100-200
9	Conference Room		Sunny	170.6	100-200
10	GM Office		Sunny	170.6	100-200
11	Accounts Section		Sunny	162.2	100-200
12	Back Winding Section	5 th Floor Building-1	Sunny	601.6	300-700
13	Auto Placket		Sunny	631.5	300-700
14	Delivery Counter		Sunny	161.0	100-200
15	Inspection		Sunny	1420	450-1500
16	Yarn Store		Sunny	-	N/A
17	Auto Knitting Section		Sunny	681.4	300-700
18	Dining Room	4 th Floor Building-1	Sunny	162.9	100-200
19	Linking Section		Sunny	634.6	300-700
20	Sewing Section		Sunny	652.4	300-700
21	Iron Section		Sunny	464.4	300-700
22	Light Check Section		Sunny	1478.8	450-1500
23	Trimming & Mending Section		Sunny	681.4	300-700
24	PQC Section		Sunny	659.4	300-700
25	Packing Section		Sunny	651.6	300-700
26	Linking Section	3 rd Floor Building-1	Sunny	623.5	300-700
27	Sewing Section		Sunny	564.8	300-700
28	Iron Section		Sunny	650.2	300-700
29	Light Check Section		Sunny	1291.8	450-1500



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Serial No.	Name of Sections	Location	Effect of weather Condition	Obtained Result in Lux0	BNBC 2006 Guideline standards (lux)
30	Trimming & Mending Section	2 nd Floor Building-1	Sunny	655.6	300-700
31	PQC Section		Sunny	630.4	300-700
32	Packing Section		Sunny	633.7	300-700
33	Linking Section		Sunny	648.2	300-700
34	Sewing Section		Sunny	659.0	300-700
35	Iron Section		Sunny	611.8	300-700
36	Light Check Section		Sunny	1419.8	450-1500
37	Trimming & Mending Section		Sunny	658.6	300-700
38	PQC Section		Sunny	635.4	300-700
39	Packing Section		Sunny	646.0	300-700
40	Finished Good Area		1 st Floor Building-1	Sunny	-
41	General Store	Sunny		159.2	100-200
42	Winding Section	Sunny		621.5	300-700
43	Yarn Distribution	Sunny		178.4	100-200
44	Inspection	Sunny		1480.0	450-1500
45	Training Room	Sunny		161.0	100-200
46	Panel Inspection	Sunny		1488.0	450-1500
47	Auto Jacquard Section	Ground Floor Building-1	Sunny	687.6	300-700
48	Boiler Room		Sunny	156.8	100-200
49	Substation-1 Room		Sunny	156.6	100-200
50	Generator Room	Building-2	Sunny	160.0	100-200
51	Child Care Room	Building-3	Sunny	168.4	100-200
52	Medical Room		Sunny	159.0	100-200
53	Substation-2 Room	Building-4	Sunny	157.6	100-200



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54	Washing Section	Shed-1	Sunny	495.8	300-700
55	Jacquard Section	Shed-2	Sunny	642.4	300-700
56	Wastage Shed	Shed-3	Sunny	-	N/A
57	Chemical Store	Shed-4	Sunny	-	N/A
58	Wastage Metal Area	Shed-5	Sunny	-	N/A
59	ETP	ETP Area	Sunny	156.4	100-200

Source: Field Survey January 18, 2018

Reference: BNBC 2006 guidelines chapter 1, part 8, table (8.1.5, 8.1.7, 8.1.9 & 8.1.10)

Note: Light Level BAB Accredited Scope

Envirotech



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Graphical Presentation of Light Level:

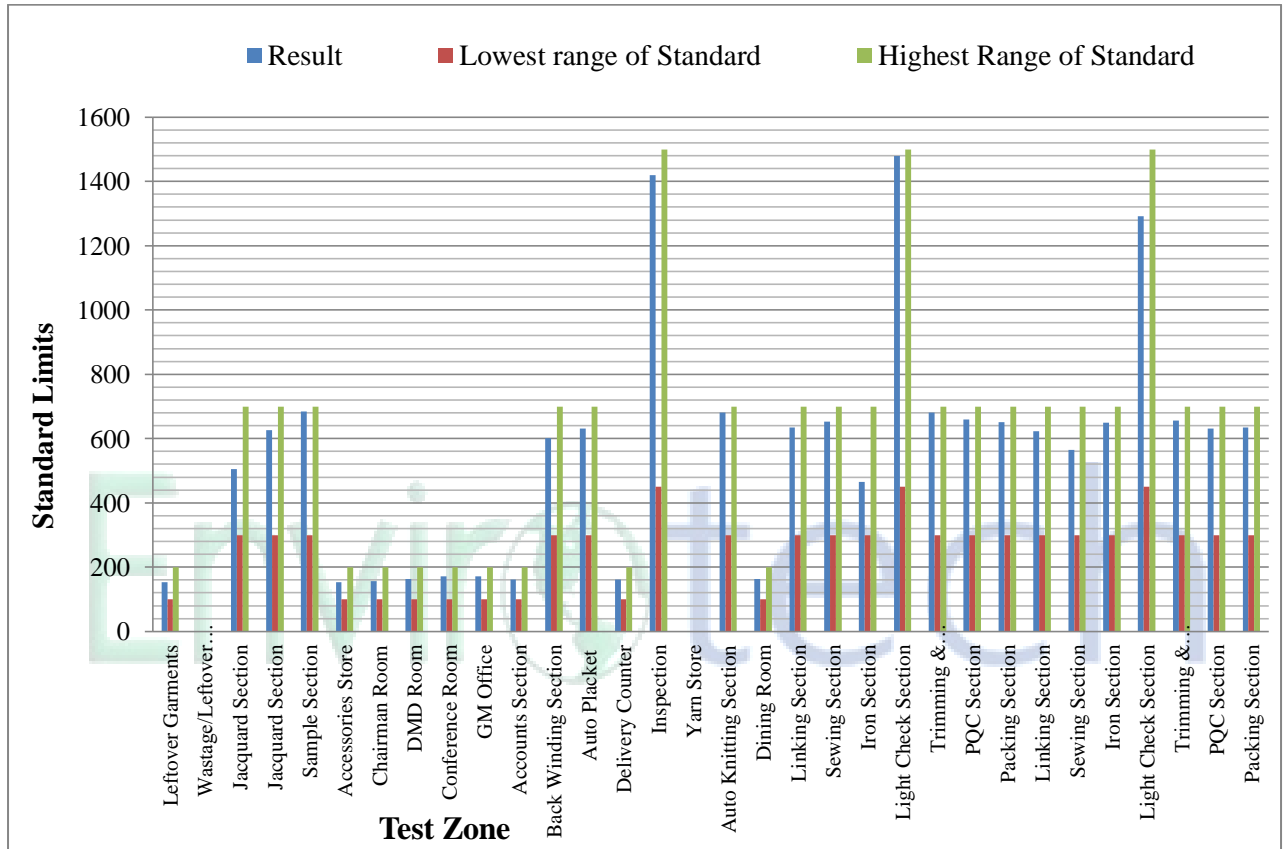


Figure: Graphical Presentation of the Illumination Level Test Result.

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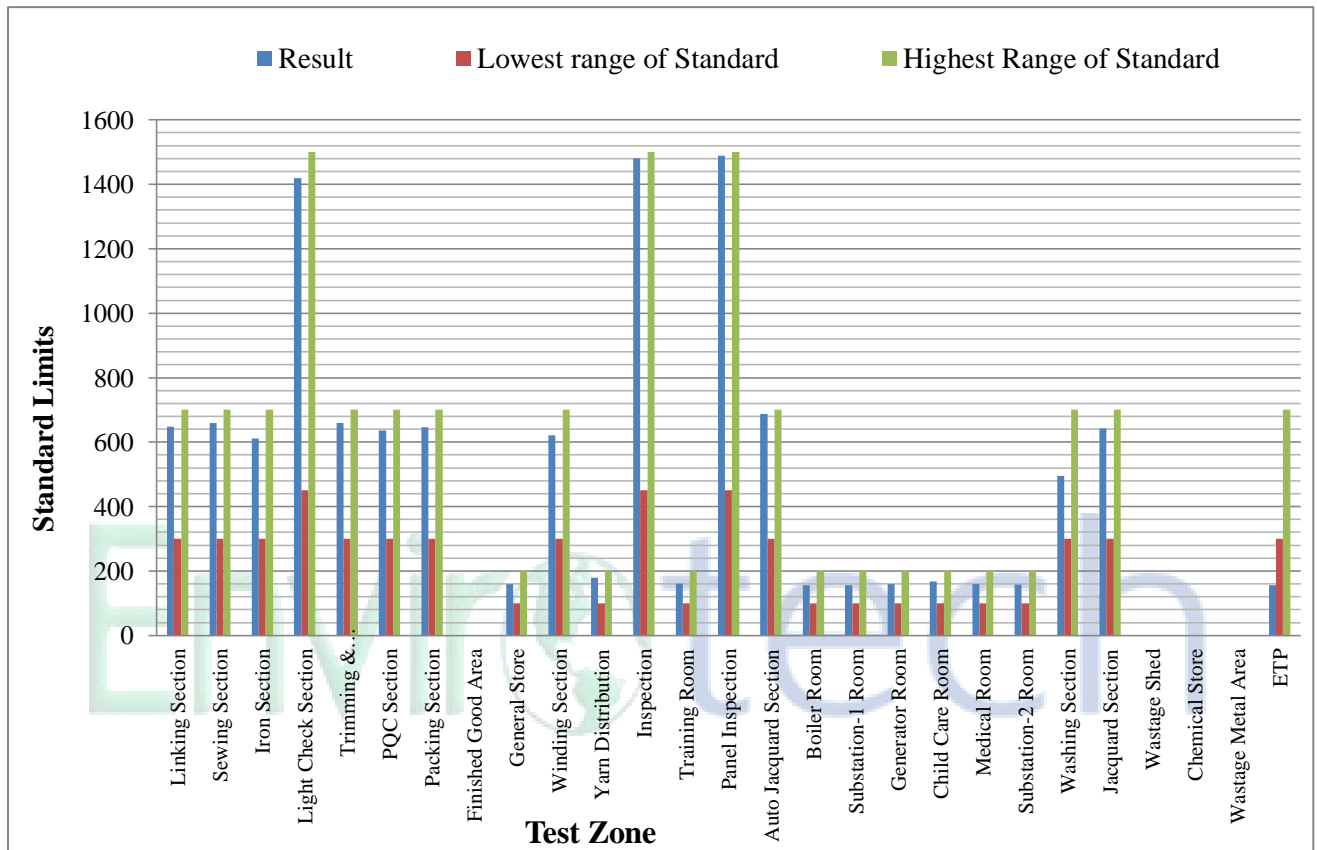


Figure: Graphical Presentation of the Illumination Level Test Result.

Comment: The result was found satisfactory and the workplace light level quality condition is good comparison to light level standard. According to the Bangladesh National Building Code 2006 in Yarn Store, Chemical Store is not allowed to electricity connection. It is highly recommended that if authority wants to enter these places please bring a torch or spot lamp to avoid undesirable firing.



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Machine Description of Generator-1, 2 & 3:

Key Information	Generator-1	Generator-2	Generator-3
Location	Ground Floor	Ground Floor	Ground Floor
Registration No.	BERC/Power/LWC-1043/1661/4880	BERC/Power/LWC-1043/1661/4880	Applied
Capacity	400 KW	280 KW	430 KW
Made in	UK	USA	USA
Model/Brand	Tempest	Cummins	Cummins
Supplier Name	Cross World Power Ltd.	Mir Trading	Mir Trading
Installation Date	4/4/2016	11/4/16	2/6/16
Machine maintenance/ Repair Status	Good	Good	Good
Fuel type	Diesel	Diesel	Diesel
Last service date	22/12/2017	22/12/2017	22/12/2017

Result of Stack Emission Level (Generator-1, 2 & 3):

SL No.	Test parameter	Results			ECR' 1997 (mg/Nm ³ or as indicated)	STeP by OEKO-TEX standards (mg/Nm ³)	World Bank 2006 –IFC Standard (mg/Nm ³ or as indicated)
		Generator 1	Generator 2	Generator 3			
		(in mg/Nm ³ or as indicated)					
1	O ₂ (%)	9.7	7.6	11.7	NYS	3%	15%
2	CO	283.3	308.9	302.3	NYS	500	NYS
3	NO	159	62.9	305.7	NYS	NYS	NYS
4	CO ₂ (%)	2.47	3.1	3.3	NYS	NYS	NYS
5	NO _x	145.7	74.7	303.7	NYS	350	1460
6	SO ₂	0	0	0	NYS	100	860
7	SPM	16	18	21	350	50	NYS

Source: Field Survey January 18, 2018

Note:

O₂ : Oxygen

CO₂

: Carbon di Oxide


SPM : Suspended Particulate Matter


NO_x


: Nitrogen oxides

NYS : Not Yet Set.

O₂, CO, CO₂, NO, SO₂ are BAB Accredited Scopes


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Graphical Presentation of Stack Emission Level (Generator-1, 2 & 3):

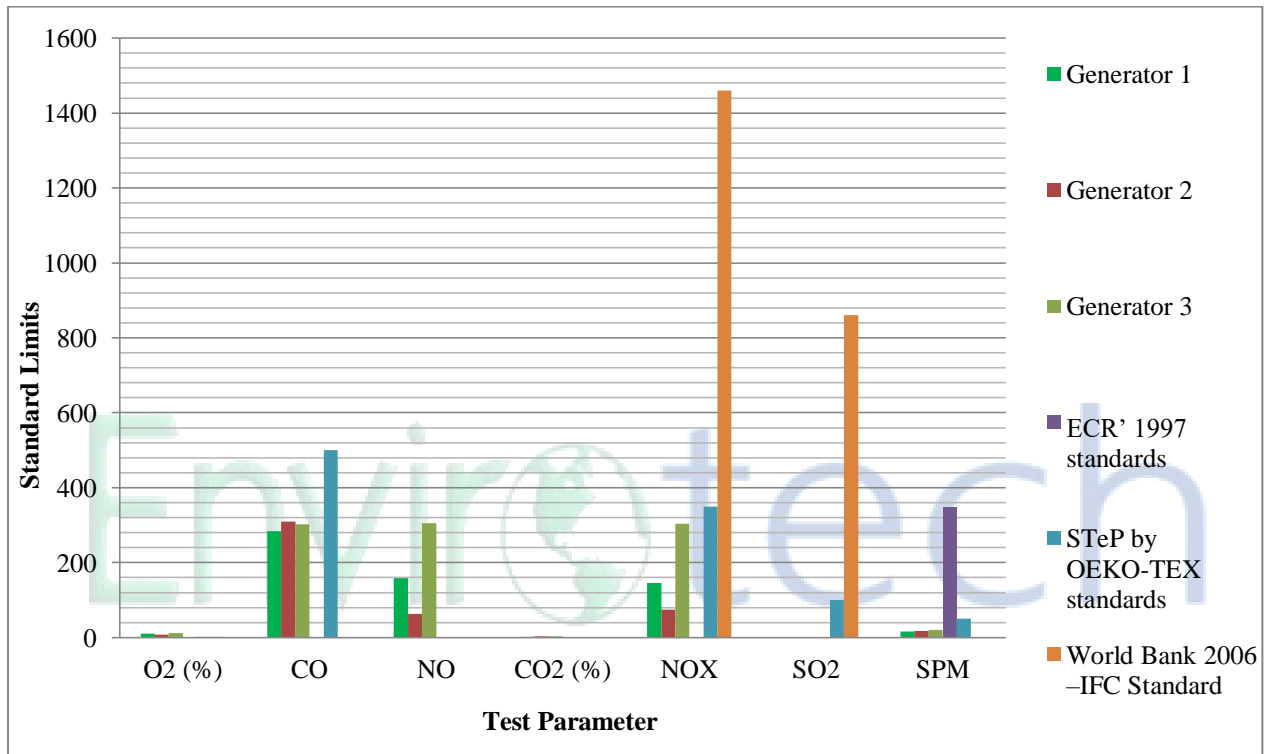


Figure: Graphical presentation of stack emission Level from Generator-1, 2 & 3.

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Machine Description of Generator-4, 5 & 6:

Key Information	Generator-4	Generator-5	Generator-6
Location	Ground Floor	Ground Floor	Ground Floor
Registration No.	Applied	Applied	Applied
Capacity	430 KW	600 KW	40 KW
Made in	USA	USA	USA
Model/Brand	Cummins	Cummins	Cummins
Supplier Name	Jakson	Jakson	Mir Trading
Installation Date	15/8/2015	26/03/2016	2/6/2016
Machine maintenance/ Repair Status	Good	Good	Good
Fuel type	Diesel	Diesel	Diesel
Last service date	22/12/2017	22/12/2017	22/12/2017

Result of Stack Emission Level (Generator-4, 5 & 6):

SL No.	Test parameter	Results			ECR' 1997 (mg/Nm ³ or as indicated)	STeP by OEKO-TEX standards (mg/Nm ³)	World Bank 2006 –IFC Standard (mg/Nm ³ or as indicated)
		Generator 4	Generator 5	Generator 6			
		(in mg/Nm ³ or as indicated)					
1	O ₂ (%)	10.8	11.7	11.9	NYS	3%	15%
2	CO	291.3	273	270.7	NYS	500	NYS
3	NO	267	110	249	NYS	NYS	NYS
4	CO ₂ (%)	3.4	3.2	2.9	NYS	NYS	NYS
5	NO _x	288.7	100.9	254	NYS	350	1460
6	SO ₂	0	0	0	NYS	100	860
7	SPM	16	17	22	350	50	NYS

Source: Field Survey January 18, 2018

Note:

O₂ : Oxygen

CO₂

: Carbon di Oxide

SPM : Suspended Particulate Matter

NO_x

: Nitrogen oxides

NYS : Not Yet Set.

O₂, CO, CO₂, NO, SO₂ are BAB Accredited Scopes



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Graphical Presentation of Stack Emission Level (Generator-4, 5 & 6):

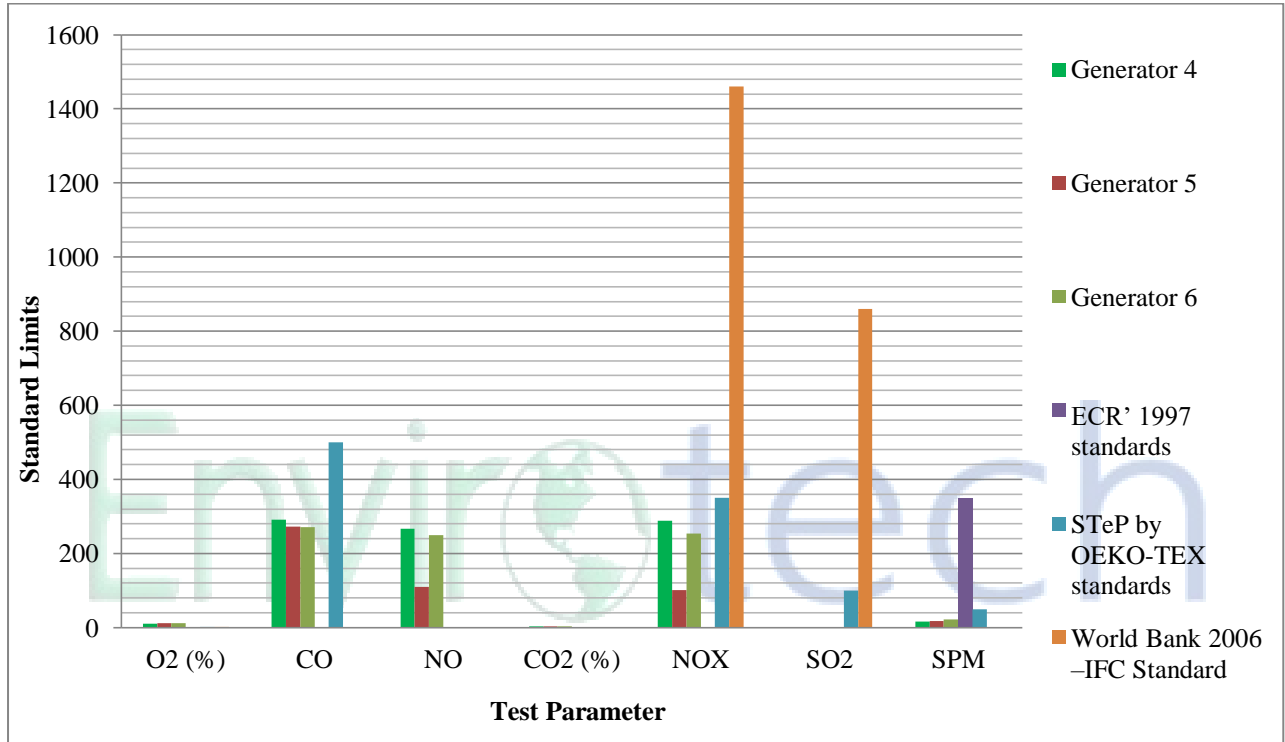


Figure: Graphical presentation of stack emission Level from Generator-4, 5 & 6.



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Graphical Presentation of Stack Emission Level (Generator-7 & 8):

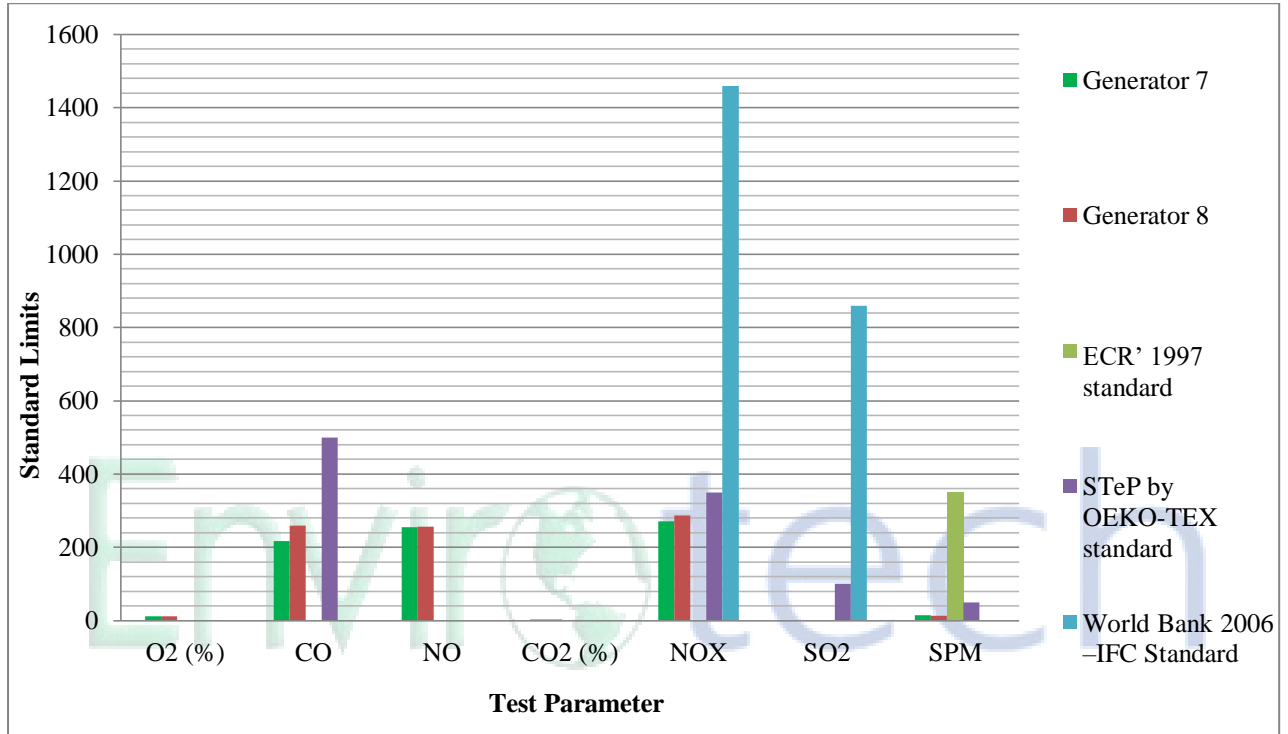


Figure: Graphical presentation of stack emission Level from Generator-7 & 8.

Comments: The stack emission from the stack point of generator has been analyzed for the parameter of O₂, CO, CO₂, NO, NO_x, SPM and SO₂ to evaluate the effect of the plants emission while running on 100% Diesel on the air environment. It is observed that the emission of these parameters is within the standard range that does not provide harmful effect on the air environment and but cautious to human health when exposed for long time. So it is recommended that gas mask should be provided to related workers to avoid occupational health hazard.



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Machine Description of Boiler-1:

Key Information	Boiler-1
Location	Ground Floor
Registration No.	Ba.Bo-8356
Capacity	1 Ton
Supplier Name	Trade Venture Ltd.
Made in	Mk3(cochar)
Model/Brand	UK
Installation Date	2/9/2016
Machine maintenance/ Repair Status	Good
Fuel type	Gas
Last service date	22/12/2017

Result of Air Emission Level (Boiler-1):

Serial No.	Test parameter	Result	ECR' 1997 (mg/Nm ³ or as indicated)	STeP by OEKO-TEX standards (mg/Nm ³)	World Bank 2006 –IFC Standard (mg/Nm ³ or as indicated)
		Boiler-1 (in mg/Nm ³ or as indicated)			
1	O ₂ (%)	2.8	NYS	3%	3%
2	CO	51.3	NYS	500	NYS
3	NO	61.6	NYS	NYS	NYS
4	CO ₂ (%)	6.9	NYS	NYS	NYS
5	NO _x	68.5	150	350	320
6	SO ₂	9.7	NYS	100	NYS
7	SPM	13	100	50	NYS

Source: Field Survey January 18, 2018

Note:

O₂ : Oxygen

CO₂

: Carbon di Oxide

SPM : Suspended Particulate Matter

NO_x

: Nitrogen oxides

NYS : Not Yet Set.

O₂, CO, CO₂, NO, SO₂ are BAB Accredited Scopes



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Graphical Presentation of Air Emission Level (Boiler-1):

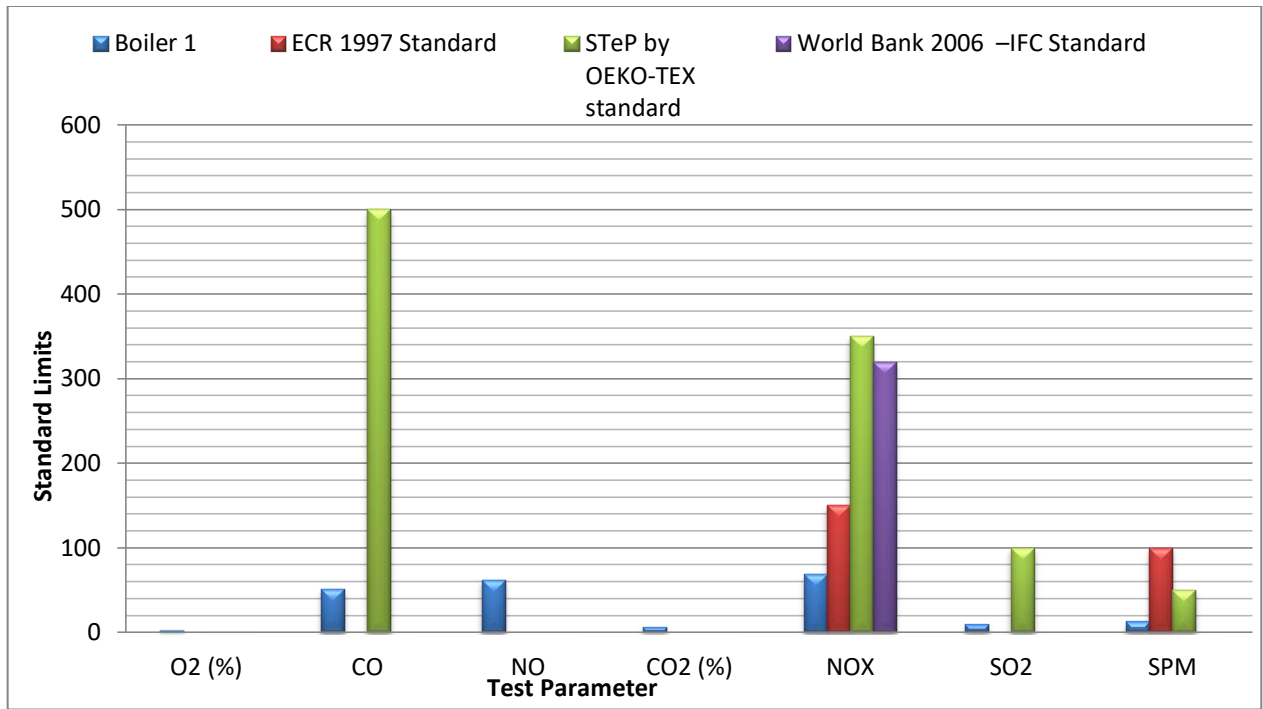


Figure: Graphical presentation of air emission test result from Boiler-1.



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Graphical Presentation of Air Emission Level (Boiler-2):

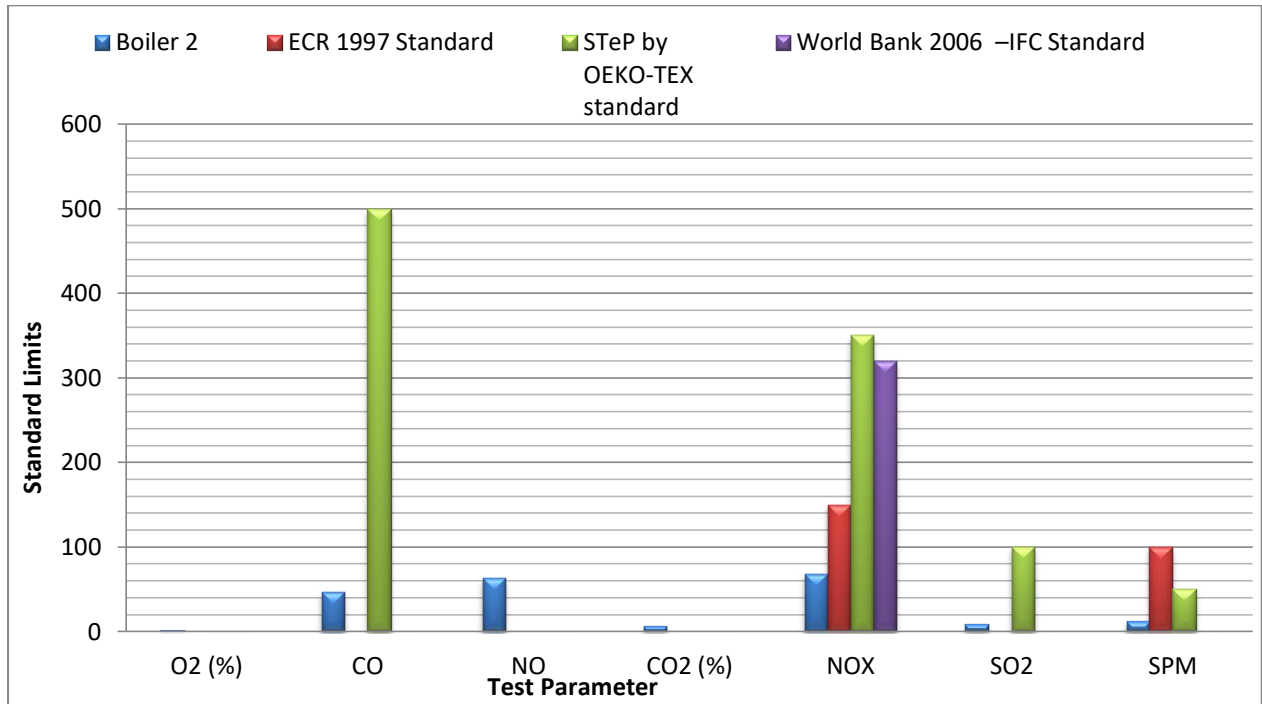


Figure: Graphical presentation of air emission test result from Boiler-1.

Comments: The air emission from the stack point of boilers have been analyzed for the parameter of O₂, CO₂, NO_x, CO, SO_x, SPM to evaluate the effect of the plants emission while running on 100% Gas on the air environment. It is observed that the emission of these parameters is within the standard range that does not provide harmful effect on the air environment and but cautious to human health when exposed for long time. So it is recommended that gas mask should be provided to related workers to avoid occupational health hazard.



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Indoor Air Quality of the project area (Building-1)

SL. No.	Test Parameter	Units	Method of Analysis	Result								ECR- 1997	IFC/World Bank Standard
				7 th Floor	6 th Floor	5 th Floor	4 th Floor	3 rd Floor	2 nd Floor	1 st Floor	Ground Floor		
1	SPM	µg/m ³	Gravimetric	70.5	69.5	66.0	69.5	64.1	69.5	66.0	67.1	200 (8 hours)	NYS
2	PM _{2.5}	µg/m ³	Gravimetric	11	09	13	09	11	09	13	10	65 (24 hours)	75 (24 hours)
3	PM ₁₀	µg/m ³	Gravimetric	10	09	12	10	13	10	12	14	150 (24 hours)	160 (8 hours)
4	O ₃	µg/m ³	Gas Monitor / Transmitter	15	14	13	15	13	15	13	12	157	160 (8 hours)
5	CO ₂	ppm	Air Quality Monitor	16	17	11	17	14	17	11	19	NYS	NYS
6	SO _x	µg/m ³	West-Gaeke	13	11	14	13	15	13	14	18	365 (24 hours)	125 (24 hours)
7	NO _x	µg/m ³	Jacob and Hochheiser	08	11	09	11	13	11	09	11	100 (1 Year)	200
8	CO	ppm	Air Quality Monitor	0	0	0	0	0	0	0	0	10000 (8 hours)	NYS
9	VOC	L/M/H	Air Quality Monitor	L	L	L	L	L	L	L	L	NYS	NYS

Source: Field Survey January 18, 2018

Note:

SO₂ = Sulfur dioxide;

CO = Carbon Monoxide,

NO_x = Nitrogen Oxides,

SPM = Suspended Particulate Matter,



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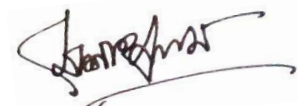
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ECR = Environmental Conservation Rules NYS= Not Yet Set.
SPM, O₃, CO₂, VOC are **BAB Accredited Scopes**

Indoor Air Quality of the project area

SL. No.	Test Parameter	Units	Method of Analysis	Result							ECR- 1997	IFC/World Bank Standard
				Building-2	Building-3	Building-4	Shed-1	Shed-2	Shed-4	ETP Area		
1	SPM	µg/m ³	Gravimetric	69.5	65.1	63.0	69.5	64.1	67.5	68.0	200 (8 hours)	NYS
2	PM _{2.5}	µg/m ³	Gravimetric	09	11	13	09	11	09	13	65 (24 hours)	75 (24 hours)
3	PM ₁₀	µg/m ³	Gravimetric	09	13	12	10	13	10	12	150 (24 hours)	160 (8 hours)
4	O ₃	µg/m ³	Gas Monitor / Transmitter	14	13	19	15	13	15	13	157	160 (8 hours)
5	CO ₂	ppm	Air Quality Monitor	17	17	11	17	11	19	11	NYS	NYS
6	SO _x	µg/m ³	West-Gaeke	11	13	14	13	14	13	14	365 (24 hours)	125 (24 hours)
7	NO _x	µg/m ³	Jacob and Hochheiser	11	11	09	11	09	13	10	100 (1 Year)	200
8	CO	ppm	Air Quality Monitor	0	0	0	0	11	0	0	10000 (8 hours)	NYS
9	VOC	L/M/H	Air Quality Monitor	L	L	L	L	L	L	L	NYS	NYS

Source: Field Survey January 18, 2018



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Note:

SO₂ = Sulfur dioxide;

NO_x = Nitrogen Oxides,

CO = Carbon Monoxide,

SPM = Suspended Particulate Matter,

ECR = Environmental Conservation Rules

NYS= Not Yet Set.

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Ambient Air Quality of the Project Area

SL. No.	Test Parameter	Units	Method of Analysis	Result	DoE-2005, ECR- 1997	IFC/World Bank Standard	US EPA (NAAQS) Standard
1	SPM	µg/m ³	Gravimetric	69.5	200 (8 hours)	NYS	NYS
2	PM _{2.5}	µg/m ³	Gravimetric	09	65 (24 hours)	75 (24 hours)	35 (24 hours)
3	PM ₁₀	µg/m ³	Gravimetric	10	150 (24 hours)	160 (8 hours)	150 (24 hours)
4	O ₃	µg/m ³	Gas Monitor / Transmitter	15	157	160 (8 hours)	0.075 ppm (8 hours)
5	CO ₂	ppm	Air Quality Monitor	17	NYS	NYS	NYS
6	SO ₂	µg/m ³	West-Gaeke	13	365 (24 hours)	125 (24 hours)	0.5 ppm (3 hours)
7	NO _x	µg/m ³	Jacob and Hochheiser	11	100 (1 Year)	200	NYS
8	CO	ppm	Air Quality Monitor	0	10000 (8 hours)	NYS	9 (8 hours)
9	VOC	L/M/H	Air Quality Monitor	L	NYS	NYS	NYS

Source: Field Survey January 18, 2018



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Note:

SO_x = Sulfur dioxide; NO = Nitrogen Oxides,
CO = Carbon Monoxide, SPM = Suspended Particulate Matter,
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Comment: The local area may be classified as mixed industrial areas defined and found from survey. Air quality, based on analysis carried out by sampling at site on January 18, 2018 shows the SPM, PM2.5, PM10, CO₂, SO_x, NO_x, CO, VOC and O₃ concentrations in the ambient air is far below the allowable limit. The weather was Sunny. Since the wind direction was from the south-east to north-west corner and still has reasonable buffer/assimilation capacity to adsorb air pollutants to a certain extent. Therefore, these are within the prescribed limit of the National Air Quality Standards.



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Sources of Green House Gas:

The four main greenhouse gases are CO₂, CH₄, NO₂, water vapor. There are both natural and human sources Green House gas emissions. Natural sources include decomposition, ocean release, respiration and volcanoes. Human sources come from activities like cement production, deforestation and the burning of fossil fuels.

The Probable Greenhouse Gas Emission area of the Raidha Collections Ltd. is Generator (Diesel Engine);

Table shows the present greenhouse gas emission from the project area.

SL. No.	Test Parameter	Units	Method of Analysis	Result	ECR- 1997	IFC/World Bank Standard
1	CO ₂	ppm	Digital Gas Analyzer	79	NYS	NYS
2	CH ₄	ppm	Digital Gas Analyzer	64	NYS	NYS
3	NO ₂	ppm	Digital Gas Analyzer	74	NYS	NYS

Source: Field Survey January 18, 2018



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Ozone Depleting Substances

The ozone depletion process begins when CFCs and other ozone-depleting substances (ODS) are emitted into the atmosphere. Winds efficiently mix the troposphere and evenly distribute the gases. CFCs are extremely stable and they do not dissolve in rain. After a period of several years, ODS molecules reach the stratosphere, about 10 kilometers above the Earth's surface. Strong UV light breaks apart the ODS molecule. CFCs, HCFCs, carbon tetrachloride, methyl chloroform, and other gases release chlorine atoms, and halons and methyl bromide release bromine atoms. It is these atoms that actually destroy ozone, not the intact ODS molecule. It is estimated that one chlorine atom can destroy over 100,000 ozone molecules before it is removed from the stratosphere.

Table: Result of the ODS Emission Testing

Serial No.	Test parameter	Units	Result	DoE' 2005 Standards	International/ World Bank Standard
1	O ₃	µg/m ³	15	157	160
2	TVOC	-	Low	NYS	NYS
3	CFCs, HCFCs, carbon tetrachloride, methyl chloroform and other gases	-	Nil	NYS	NYS

Source: Field Survey January 18, 2018

Note: O₃ = Ozone, TVOC = Total Volatile Organic Compound

O₃, TVOC are BAB Accredited Scopes

Ozone Depleting Substance (ODS) emission test result of Raidha Collections Ltd. was below the available limit as per Bangladesh ECR & World bank Air Quality Standard. So the Air quality of Raidha Collections Ltd. is not harmful for Ozone layer depletion.

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Photograph:



Light Level Test



Sound Level Test



Temperature, Humidity Level Test



Air Stack Emission Test



Ambient Air Quality

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